September 12, 1997

REP Program Strategic Review Steering Committee
Concept Paper: Exercise Streamlining

ISSUE

In July 1996, a Federal Register notice announced the strategic review of FEMA's Radiological Emergency Preparedness (REP) program and requested comments. A majority of the comments received indicated that the stakeholders and customers in the REP program are not satisfied with FEMA-REP 14 (REP Exercise Manual) and REP-15 (REP Exercise Methodology). Furthermore, the respondents indicated that the application of current documents is not uniform and consistent during REP exercise evaluations and that the current sets of EEMs and FEMA-REP-14 should be revised.

BACKGROUND

The foundation for REP exercises can be located in 10 CFR 50 and 44 CFR 350, 351, and 352, and the NRC and FEMA Memorandum of Understanding (MOU) dated June 17, 1993, which is in 44 CFR 353.7, Appendix A. According to 10 CFR 50, Appendix E, a "Full Participation" exercise is defined as the testing of the major observable portions of the onsite and offsite emergency plans and the mobilization of State, tribal, local and licensee personnel and other resources in sufficient numbers to verify the capability to respond to the accident scenario. 44 CFR 350, section 350.9, subparagraph (a) indicates that a joint exercise (onsite and offsite) with full participation of appropriate State and local government authorities and the licensee would be conducted. The 1993 MOU, Section II, 2. (2) states that the purpose for an exercise is to provide reasonable assurance that the plans can be implemented. Section III, paragraph C of the MOU discusses the preparation for and evaluation of joint exercises, but does not elaborate on methodology. The only mention of FEMA-REP-14 is to indicate the schedule for issuance of exercise reports. 44 CFR 350, section 350.13, (a) (2) states that the basis used for reviewing both plans and exercises is NUREG 0654/FEMA/REP-1, Rev.1. It is noted that the sixteen (16) planning standards of NUREG-0654 are contained in both 44 CFR 350 and 10 CFR 50.

To clarify what constituted an exercise, and to develop a standardized evaluation methodology, FEMA issued Guidance Memorandum EX-3 in February 1988. This document provided guidance on the REP exercise process and introduced a set of 36 standard exercise objectives. The 36 exercise objectives were based on the planning standards and evaluation criteria of NUREG-0654/FEMA-REP-1, Revision 1 and Supplement 1.

Based on these exercise objectives, the original Exercise Evaluation Methodology (EEM) was issued in May 1988 as an interim-use document. The 1988 edition of EEMs was

developed as an objective-driven exercise evaluation instrument to replace the modular format issued in August 1983.

Comments were requested from FEMA Regions, states, local governments, NRC licensees, and other Federal agencies for the refinement of the EEMs. Based on the comments received, FEMA revised and issued FEMA-REP 14 and REP-15 in September 1991. This refinement included a reduction to 33 exercise objectives. These 33 objectives were meant to represent a functional translation of the planning standards and evaluation criteria of NUREG-0654 that could both be demonstrated and observed during REP exercises. In addition, many elements of various GMs that had been issued by FEMA were incorporated into both REP-14 and REP-15.

ANALYSIS

The following discussion is based on the current REP guidance for exercise evaluation. It also identifies several new methods to confirm the existence of reasonable assurance that appropriate protective measures can be taken to protect the health and safety of the public living in the vicinity of a nuclear power plant in the event of a radiological incident. The purpose is to identify an acceptable approach to streamlining the exercise evaluation process and supporting guidance. The concept paper also identifies additional methods, that if used in conjunction with exercise evaluation, could also be used to establish and/or confirm that reasonable assurance is being maintained. Some of the approaches that may be considered are: concentration on a "results oriented" evaluation process, concentration on objectives that are radiological in nature, expanded use of the Annual Letter of Certification (ALC), verification of ALCs through the use of random inspections, development of a more flexible credit policy for participation in other natural hazard exercises and for response to real incidents, etc. These and other approaches are addressed in more detail in the Discussion section of this concept paper. The SRSC did not want to give the impression that, at this point, the resulting exercise guidance and evaluation methodology would be interpreted as a revision to REP-14/15, since it might take an entirely different form. Thus the paper is titled Exercise Streamlining.

DISCUSSION

1. FEMA-REP-14 and 15 should be revised to support a "results oriented" exercise evaluation process.

At the present time, exercises are evaluated in an "objective based" format with a methodology that includes a sizeable number of Points of Review that must be satisfactorily demonstrated to successfully meet the requirements of the objective. This system is very structured and leaves little latitude for satisfying the objective by alternate means. "Results oriented" exercises allow the players to complete an activity without following a specific checklist. This approach will provide the exercise players much more latitude to reach the desired results. It will also allow state and local government

the flexibility to concentrate training activities in the areas where responders feel additional reinforcement is needed.

Evaluators will then concentrate on the results of exercise participation, not the means to reach a result. If a player uses an alternate means to complete a task and there is no negative effect because of this, there should not be an exercise issue.

2. Concentrate more on radiological aspects of REP and less on "All-Hazards" response aspects. Therefore, unnecessary objectives and Points of Review could be eliminated.

Recommendations have been made to streamline the REP Exercise Program to concentrate more on specific radiological aspects of REP and less on the "All-Hazards" aspects. Currently, REP-14 and REP-15 contain several objectives and Points of Review, which are designed to evaluate portions of an offsite response organization's overall preparedness and response capability. Some of these objectives and points of review focus on response procedures and capabilities which are applicable to any type of emergency such as fires, chemical spills, flooding, tornadoes, and other natural or technological hazards. Yet, it is conceded that jurisdictions with REP programs are better prepared than most to meet the demands of other disaster events.

Some specific areas of REP-14 and REP-15 that focus on "All-Hazards" response procedures and capabilities are: Objective 1, Mobilization; Objective 2, Facilities and Equipment; Objective 3, Direction and Control; Objective 4, Communications; Objective 17, Traffic and Access Control; Objective 19, Congregate Care; Objective 30, 24-Hour Staffing; Objective 32, Unannounced Exercise; and Objective 33, Off-Hours Exercise. Many of the Points of Review (PORs) evaluated within these objectives involve activities that are routinely conducted by emergency responders during various non-REP disaster responses or exercises. Therefore, some of these PORs, and in some cases objectives, which are not REP-specific could be eliminated from the REP exercise evaluation process. However, the objectives would still need to be evaluated by some other means.

3. Several objectives and Points of Review (PORs) are closely related; REP-14 and REP-15 could be streamlined by combining similar objectives and PORs.

Comments from numerous state and local, utility, and federal organizations have indicated a desire to streamline REP-14 and REP-15 objectives. Obvious similarities between objectives and repeated experience in exercise evaluations provide strong evidence that several objectives can easily be combined without harming the evaluation process. By combining objectives, duplicate points of review, and in some cases, entire objectives may be eliminated. The evaluation document will become less prescriptive and more supportive of the outcome based approach (see 1. Above).

Some examples of objectives which should be combined are: Objectives 1 (Mobilization) and 30 (24-Hour Staffing); Objectives 2 (Facilities), 3 (Direction and Control), and 4 (Communications); Objectives 5 (Exposure Control) and 14 (KI); Objectives 6 (Ambient

Monitoring) and 8 (Airborne Radioiodine Monitoring); Objectives 11 (Public Instructions), 12 (Media Information) and 13 (Rumor Control); Objectives 15 (Special Populations) and 16 (Schools); and Objectives 18 (Reception Center) and 22 (Emergency Workers).

4. FEMA-REP-14 and REP-15 must be updated to include/reflect numerous changes in Federal guidance which have occurred since publication of the documents and to resolve inconsistencies with other guidance.

Subsequent to the publication of FEMA-REP-14 and 15 in September 1991, several major changes in Federal guidance have occurred which significantly impact the REP program. FEMA-REP-14 and 15 must be updated to ensure that they are current and consistent with other Federal regulations and guidance.

Some examples of changes which are required for REP-14 and 15 include: update to reflect the Emergency Alert System (EAS) and the use of "Special News Broadcasts"; update to ensure consistency with the current EPA 400 Manual of Protective Action Guides; and to reflect the current philosophy of using "Total Effective Dose Equivalent (TEDE)" to determine radiation exposure.

5. The required demonstration frequency of objectives should be reevaluated. Some objectives should be demonstrated more frequently and others less frequently.

a. Several comments regarding the Strategic Review have indicated a desire for more frequent demonstration of Relocation, Re-entry, and Return and Ingestion Pathway objectives (Objective numbers: 23, 24, 25, 26, 27, 28, and 29). As these objectives represent a significant portion of the response process, increasing the demonstration requirements to something more frequent than every six years is advisable. This may be a misunderstanding of the intent of the guidance. Currently the requirement calls for the demonstration of ingestion and recovery functions at a minimum, every six years. The state and local government officials may choose to demonstrate these functions more often if they choose.

   One concept presented is to have an option to start the exercise at the post emergency phase (Recovery and Ingestion) thus eliminating the emergency phase. This would allow full concentration by the players on the Relocation and Ingestion objectives. This option could be supported if there has been a series of successful Emergency Phase exercises.

   There are several objectives that could be demonstrated less frequently than the current guidance requires. One example is to require the evaluation of Medical Drills every two years instead of annually.

6. FEMA-REP-14 should contain additional guidance concerning out-of-sequence evaluations.

a. It is possible to perform numerous exercise demonstrations out-of-sequence from the biennial exercises. Out-of-sequence demonstrations may be scheduled during the non-exercise year, other times during the exercise year, and/or another day during the exercise week.

Examples of some facilities or functions that may be conducted out-of-sequence include:

1. School drills should be conducted during the school year. Exercises are conducted many times when schools are out of session. This drill could be evaluated out of sequence to the full-scale exercise, during the school year.

2. Medical Services drills are currently conducted out of sequence most of the time. The current requirement to demonstrate once every year may be relaxed. (See MS-1 paper).

3. Reception/Mass Care demonstrations may be more beneficial to the players and the schools if these evaluations were conducted outside of the exercise. The FEMA evaluator and jurisdiction staff could visit all school facilities to be used as mass care centers. The county officials/players can provide a schematic of the monitoring/decontamination area of the school. The FEMA staff person may be able to offer constructive ideas to improve the layout. Once a reception/mass care center has been visited and evaluated, there should not be a need to revisit the same center until centers are changed (or if there have been physical changes to the facility). The abilities of the monitoring and decontamination teams staffing the reception/mass care centers during an incident would need periodic evaluation, either during the scheduled exercise or out-of-sequence, at the county or at places of employment. There is no need to evaluate staffing and running of these centers since they are normally activated for all-hazard disasters. See Credit under Discussion Item No. 8.

4. Other activities that may be evaluated out-of-sequence include:

    a. Nursing Homes
    b. Correctional Centers
    c. Radiological Laboratories
    d. Ingestion Pathway Field Teams
    e. Traffic and Access Control
    f. Dose Calculations for Recovery and Ingestion Phases
    g. Monitoring and Decontamination Facilities

5. It may be possible to play the Plume Phase of an Ingestion exercise out-of-sequence. The Plume Phase could stop with the protective actions and the Ingestion phase could be conducted up to several months later beginning with the general emergency and protective actions. This was done as a pilot study and as a tabletop ingestion exercise.

b. Evaluators should provide direct feedback to exercise participants immediately following the exercise. These "critiques" should not attempt to detail the seriousness of any inadequacies observed, but should allow the evaluators to provide positive feedback and general recommendations for improvement.

c. Immediate correction of issues identified should be allowed following completion of the exercise. For example, if inappropriate monitoring techniques were demonstrated, the evaluator could provide instruction on proper monitoring and then allow for immediate re-demonstration. The issue would be documented as an Area Requiring Corrective Action (ARCA) in the Standard Exercise Report Format (SERF), with the appropriate statement documenting the completion of corrective action.

7. There are additional objectives that could be satisfactorily demonstrated by response to an actual emergency or other hazard exercises.

At the present time, FEMA-REP-14 and 15 indicate that demonstration of objectives 32 and 33, unannounced and off-hours exercises and drills, may be satisfied by a response to an actual emergency. However, there are other objectives that, although there are some radiological aspects to them, contain major generic emergency operations for which credit could be granted. The objectives identified below are demonstrated during any disaster response. Objectives that could qualify for credit are:

Objective 1 (Mobilization)
Objective 2 (Facilities)
Objective 3 (Direction and Control)
Objective 4 (Communications)
Objective 12 (Media Information)
Objective 13 (Rumor Control)
Objective 15 (Special Populations)
Objective 16 (Schools)
Objective 17 (Traffic and Access Control)
Objective 19 (Congregate Care)
Objective 20 (Medical Services – Transportation)
Objective 21 (Medical Services – Facilities)
Objective 23 (Supplementary Assistance)
Objective 30 (24-Hour Staffing)
Objective 31 (Offsite Support for Onsite Personnel)
Objectives 32 and 33 (Unannounced and Off Hours Exercises and Drills).

8. Alternative approaches that can be used in conjunction with a streamlined exercise to demonstrate and confirm reasonable assurance.

All nuclear power plant sites currently have findings of reasonable assurance that have been confirmed in numerous exercises since the initial determination. The proposed exercise streamlining position paper allows for other, alternative approaches to be used, in combination with a streamlined full participation exercise, to demonstrate and confirm reasonable assurance. Discussed below are traditional components of a full-participation exercise that can be evaluated in an alternate way outside of the exercise. Other approaches may include, but are not limited to, the following:

- **Staff Assistance Visits**

  a. States and Utilities conduct many different training sessions during the year. FEMA staff could attend these sessions and provide immediate feedback to the attendees. FEMA would be providing on the spot feedback rather than identifying issues in an evaluation report. This approach would build a better relationship among REP partners and stakeholders (See Partnership Paper).

  b. States and Utilities are required to conduct a variety of drills during the year. If FEMA staff were to attend the drills, such as, communication drills, etc., evaluation of these activities could be included in the final exercise report. Again, this would result in some cost during work hours or evenings; however, it would reduce the cost of evaluators/ contractors during full-participation exercises.

  c. Personal interviews with players can be used in staff assistance visits, training sessions, and out-of-sequence drills, to verify credit for objectives demonstrated during other activities, etc.

- **Out of Sequence Demonstrations (See Discussion Item 6).**

- **Credit for Actual Events or Exercises Including Non-Radiological Events.**

  Many REP objectives are demonstrated all the time during natural disasters and exercises for other hazards. The following list identifies those exercise objectives for which we should allow credit:

  a. Mobilization, Objective 1, during any emergency this objective is demonstrated. In addition, most emergencies involve 24-hour staffing (Objective 30). Therefore, both objectives could be given credit. These two objectives could be merged into one objective.

  b. Facilities, Objective 2, especially those fixed facilities that we see during every exercise. (EOCs, Mass Care Centers, etc.)

c. Direction and Control, Objective 3, the areas not involved in radiological decisions.

d. Communications, Objective 4, we should see communications during any exercise. Often communications is the first thing that fails in a disaster. All communication equipment and backup systems will be used during any response activities. If documented appropriately, credit could be given for this objective.

The personal interview with players will be important in technical assistance visits, training sessions, and out-of-sequence drills, to verify credit for objectives demonstrated during other activities, etc.

For additional objectives, please see Discussion Item 7 under FEMA REP 14-15 Analysis.

- **Annual Letters of Certification**

The Annual Letter of Certification (ALC) is the perfect tool for state and local government to document self-assessments. Already, annual public information requirements, training completions, siren operability and maintenance verifications are submitted through this document. The ALC is certified by the Governor or his designee as to its accuracy. It could be expanded very easily to include information such as the following:

a. Monitoring equipment maintenance and calibration dates.
b. Dosimeter operability and maintenance records documentation.
c. KI requirements and shelf life.
d. Communications drill results.
e. Plan updates
f. Evaluation Reports

Verification of the documentation submitted in the ALC may be accomplished by site-visits.

a. There are several objectives geared to the verification that appropriate equipment is available for emergency workers. Potassium Iodide (Objective 14) calls for the evaluator to confirm that sufficient doses exist to be given to all emergency workers and institutionalized individuals. This process could be verified during a site visit by REP staff during normal duty hours. Contract evaluator costs would be cut; however, additional costs could be incurred for additional travel, etc. as this would be done outside the exercise process.

b. Monitoring equipment and dosimetry operation/maintenance verification is required on a regular basis (See FEMA Rep 14-15). Inspections of this equipment outside the exercise timeframes can easily be accomplished. FEMA Regional

staff would save money by performing these inspections during regular work hours, when maintenance is being performed on the equipment. Although, there would be some cost for FEMA staff there would be a cost saving by reducing the amount of evaluator/contractor time during exercises. Also, see Annual Letters of Certification and Out-of-Sequence Demonstrations.

- **Self-Assessments**

For those states where local jurisdictions are required to play, state evaluators could be utilized for those jurisdictions below the county level. The one problem with this approach is staffing. Many states may not have the resources necessary to perform this function. There may be other areas where state evaluation may be viable. When evaluations are performed by a state, response capabilities should be documented and provided to FEMA.

RECOMMENDATIONS